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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,747	05/27/2005	Hiroyuki Kitayama	03500.018035	4697
5514	7590	10/05/2007	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			TYNAN, MATTHEW	
30 ROCKEFELLER PLAZA			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,747	KITAYAMA, HIROYUKI	
	Examiner Matthew Tynan	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 7/2/2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-5 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 3-5 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pg. 5-6, filed 7/2/2007, with respect to the rejection(s) of claim(s) 1-5 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of data sheets for Isopar™ materials from Exxon Corp.
2. Regarding the previous rejection of claims 1-5 under 35 U.S.C. 102(b) as being anticipated by Ikeda et al. (U.S. Pub. No. 2003/0048521) with supporting evidence from Ito et al. (U.S. 2006/0056008) and Etori (U.S. 2005/0243561), the amendment to claim 1 requiring "n(L) being not larger than 1.42" overcomes the rejection. Ikeda et al. does not specify a material for the transparent liquid that necessarily has an index of refraction not larger than 1.42.
3. However, Ikeda et al. does disclose forming the transparent liquid from materials isoparaffins (specifically, Isopar™ from Exxon Corp.), although no preferred type of Isopar™ is suggested. There are several varieties of Isopar™ available. Of the thirteen or so varieties, three have $n(L) < 1.42$. It would have been obvious to one of ordinary skill in the art at the time of the invention to use one of these materials because they are from a finite set of choice materials suggested by Ikeda et al.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (U.S. 2003/0048521) in view of Isopar™ C, E, G, L(S), H, I, J, K, L, M, P, and V, with evidence from Etori (U.S. Pub. No. 2005/0243561).

6. Regarding claim 1, Ikeda et al. discloses a display device comprising: a display substrate (1, Fig. 9) and a rear substrate (2); a transparent liquid disposed in the space between these substrates; a partition wall (3) formed from a material capable of transmitting light ([0065], line 5 teaches the wall may be made of acrylic resin); a light shielding layer disposed between the partition wall and the rear substrate ([0095], lines 1-3, “black color layer”); a light scattering layer ([0094]) disposed on the rear substrate; wherein a refractive index of the partition wall $n(K)$ is no less than that of the transparent liquid $n(L)$, and $n(K)$ and $n(L)$ satisfying $90^\circ - \text{Arcsin}[\frac{1}{2}n(K)] < \text{Arcsin}[n(L)/n(K)]$.

7. Etori et al. teaches that the index of refraction of ordinary acrylic resin is 1.5 (paragraphs [0049] and [0055]). Other materials suggested include PET ($n \approx 1.6$), polycarbonate ($n \approx 1.6$), PES ($n \approx 1.65$), quartz ($n \approx 1.54$) and glass ($n \approx 1.5$)

8. Ikeda et al. does not specify a preferred isoparaffin material to be used in the device, other than to refer to the brand name Isopar™, manufactured by Exxon Corp. The Isopar™ documents show a range of refractive indices from 1.390 to 1.455. All of these materials satisfy $90^\circ - \text{Arcsin}[\frac{1}{2}n(K)] < \text{Arcsin}[n(L)/n(K)]$ for all of the materials suggested by Ikeda et al. for the partition wall.

9. One of ordinary skill in the art would have been motivated to use these materials based on the suggestion in Ikeda et al. to use them. Furthermore, there are a finite number of Isopar™ material choices, all of which could have been used with a reasonable expectation of success.

Three of these (C, E, and G) have indices of refraction of no greater than 1.42. It would have been obvious to one of ordinary skill in the art at the time of the invention to try these materials, since one of ordinary skill has good reason to pursue the known options within his or her technical grasp. Because these are suitable materials for the device disclosed by Ikeda et al., it would have been obvious to make the device having $n(L)$ no greater than 1.42. Therefore, claim 1 is unpatentable.

10. Regarding claim 3, Ikeda et al. teaches $H = 20$ microns, $W = 8$ microns ([0090], lines 4-5). Therefore, $\alpha = 21.8$ degrees. Again, $n(K) = 1.5$. $90 - \text{Arcsin}[n(K) * \sin(\alpha)] = 56.1$ degrees. This is less than $\text{Arcsin}[n(L)/n(K)]$ for any value $n(L)$ chosen from the IsoparTM materials. Therefore, claim 3 is unpatentable.

11. Regarding claim 4, Ikeda et al. teaches the partition wall is formed of acryl ([0065], lines 1-5). Therefore, claim 4 is unpatentable.

12. Regarding claim 5, Ikeda et al. teaches the transparent liquid contains a plurality of charged particles ([0095], line 4). Therefore, claim 5 is unpatentable.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Tynan whose telephone number is 571-270-1433. The examiner can normally be reached on Mon-Fri. 7:30-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT


ANDREW SCHECHTER
PRIMARY EXAMINER